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NATURE-STUDY TRUE TO LIFE.[1]

NATURE-STUDY true to life — there is no other! If there is anything abroad imposing itself upon childhood that is not true to life, it is not nature-study. It is its caricature; it is an impostor and a cheat.

Nature-study true to life has existed with children before they enter school since the creation of man. If we would hold it in the schools equally true to life, we must study the way nature teaches in this period and the way children learn. In their early years they learn because they love nature; if in after-years they fail to learn, it is because they hate science. They surrender themselves unconditionally to nature; but with science they barter and make terms. Nature itself fascinates and leads; science too often repels and drives.

A few years ago someone in Boston, I believe, sought by a questionnaire to find out whether children liked nature-study or spelling the more; and spelling won the votes. But the decision was not against nature, but against the teachers and the teaching. Were it a question as to which is the more delightful, the spelling book or a day in the woods, the groves would surely win. Children cannot repudiate nature for the same reason that water cannot run up hill — it would be unnatural, they would not be children.

Behold in this time the perfect scientific method of nature, the teacher and the ideal attitude of the child, the learner! Nature offers herself to the child as a coherent and rational whole. This whole appeals to the child through its function and purpose, which to him is primarily its beauty and then its use. Nature as a teacher at no time insists, nor does she persecute with her attentions. Neither does she hurry or demand so much or a definite result in a given time; she exploits no philosophy; she has no theories to prove; she simply offers herself in a thousand ways, and patiently waits for any response made by the growing mind to her appeals.

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[1] Discussion of the topic "Nature-Study True to Life," before the Department of Elementary Education, National Educational Association, July, 1903.

The young learner meets these overtures of nature with an intellectual attitude that is ideally scientific. He is not blinded by prejudice; he has not been enslaved by creeds; nor has he been frightened or coerced by authority unquestioned. He has that for which the scientist ever prays and which he rarely finds — the open mind. The evident purpose of the child is the full enjoyment of the life of the moment. He is not worried with any necessity for faith, nor is his life's flow choked by the appearance of doubt. He is immersed in nature, and nature thrills in him. He is a part, and nature the whole, to which he feels he belongs. Nature-study here is true to life.

In the schools it becomes false for many reasons. One of the most obvious is that the school begins its work without properly estimating the value of what the pupil has already learned. Many of the lessons of nature have been wrong, but they have been well taught nevertheless, and they have been thoroughly learned. The impressions of these early years have been almost indelibly fixed by the slow processes of absorption and growth, and nothing but the most careful presentation of new facts by methods as natural as those employed by nature herself can correct the errors in knowledge. For example, the child for six years at least has been learning in a most effective manner that the earth is flat; that it stands still; that the sun is small and the earth is large; that the sun is near by — just above the clouds; that the sun moves; and many other things of a like kind that are diametrically wrong. We usually attempt to correct these errors by feeding the learner a soft diet of easy definition — a method that at once makes nature, as he knows it, false to the life of the child.

Again, the great picture of nature which the child has gradually built up is by the methods of the schools shattered to fragments. This is accomplished by picking out bits here and there for special study, to the exclusion of much that is necessary to a clear understanding of what is presented. Teachers usually overestimate tremendously the child's mental confusion regarding the facts and phenomena of nature. If he has had reasonable opportunities for observing nature (and if he has not, they must be provided), his mind will be a storehouse of facts of apparently many unrelated kinds, but actually, as he knows them, there is little or no disorder. They are usually well classified according to an absolutely natural method. If he studies a rose, it naturally classifies all the rest of nature. It stands as the function of sunshine, of rain, of soil, and of air. It exactly classifies the insects that visit it, and he himself takes his place in nature with respect to the rose. All nature becomes to him the rose and himself: and such study is eminently true to life.

When this picture is carried into the school, complete in its wholeness, and beautiful in the delicate balance and proportion of its parts, it is disregarded and shattered as a mirror struck by a stone. The school labors for long years to gather the fragments together again, but they are as a basket of rubbish — the charm of the original picture is forever gone. This is why all people love nature, but many hate science, or at least are indifferent to it. Science to them has been but the systematic means of destroying their nature pictures; and so far as this is true it has not been true to life.

The real function of the school is to preserve the original picture in all its completeness and further to develop it in breadth and in detail. The school's chief business now is to take the child from nature and cut him off from the original sources of material. Where once he had daily and untrammeled intercourse with things he loved, in the school program his contact is limited to the occasional excursion, when he is hampered with the feeling that he must see or learn some particular thing. Again, the nature-study of the schools becomes a discordant note in his life.

One of the most useful things that the schools can do for children is to make them skilful in the various forms of expression. Both in school and out of it children are being stifled in their growth through a lack of adequate means whereby they may express themselves. In terms of psychology, expression is the means by which we study and define our images. It is the one way we have of finding out the status of our mental life, the value of the intellectual products, or whether there is any product at all.

Left to himself, the child exhausts every resource in his attempt to do this. He continually extemporizes ways and means of expressing himself, and while they may be crude and inefficient, they are of untold educative value, because they represent an intense effort to adapt a means directly to a definite end. Nothing creates so great a demand for expression both in variety and amount as the study of nature. We live in the domain of light and color. First and last our world is a world of color. By this sign more than any other the children, and grown folks too, know nature. As the sun pursues his noiseless course, he paints the panorama of the seasons with the many hues of the landscape. Morning, noon, and night, in light and in shade, the invisible artist is at work giving us new creations in color with every hour. When the earth wakes in spring and summer, color is the symbol and guarantee of life, and it is the most striking witness to its great abundance. In the winter the metallic and earthy shades of the lifeless world are not less beautiful and attractive. The coming and going of color mark the ebb and flow of health in the human being, in the tree, and in the grass; in short, it is one of the most reliable means we have for a scientific interpretation of nature. Yet in most of the schools the subject of color as a means of expression is treated as if the children were born blind and were ever to remain so. Where color work is introduced it is almost always simply a daub here and a daub there, which in no way tells the coherent and beautiful story of nature. When the pupil looks at nature and then turns to his paintings, he finds his picture in fragments like shivered glass in a basket; and once more he finds the methods of nature-study untrue to life.

In his contact with nature the pupil becomes aware of her forces through the work they do. The silent sunshine lifts millions of tons of water from the seas, and with it bedews the earth. Like a miracle unthinkable quantities of vegetation are called from the soil and air, and given an existence when apparently nothing existed before. The prodigious operations of nature on every hand are challenged for him to measure himself against them, and to turn them to serve his purpose. It should be the work of the schools to give him the training and the tools by means of which he can command these natural forces. The "how much" and the "how strong" are questions which goad him from every side. But the one subject that would do this — mathematics — is so hideously taught that he goes through his whole school course without once ever suspecting what its real purpose is. At the end of eight years of so-called training in mathematics he leaves the public schools with his conceptions of quantitative relations in nature as poorly defined as they were when he entered.

The same may be said of his knowledge of form and proportion. Manual training is affording some assistance in this direction, but there is not half enough of it in the public schools. It is still confined to things that have no important function. In its relation to nature study it should give the pupil ways and means for testing nature's forces, and of utilizing them in the world's work. To this end there should be an enlarged opportunity to work in both wood and iron, and the shops should be open to the children every day the world around. The artistic side of the child's life is not stimulated, because he has little or no training in expression through the use of plastic materials. Nature's forms everywhere interest him, but his study of them is limited; it never reaches the stage of artistic development, because he has no appropriate means of expression which will enable him to examine, correct, and develop his images of forms. Clay, wax, sand, and plaster offer these means, but their use is an innovation, whereas they should be as common in the schoolroom as a sheet of paper or a bottle of ink. For lack of adequate opportunity to express himself in these various ways, a large part of the energies that are started and dimly outlined by his contact with nature are never developed at all. They shrivel up and pass out of consciousness never more to return, because our methods of study and teaching are not true to life.

Thus far I have dealt with the intellectual sides of nature-study, and have tried to point out some of the falseness practiced by the schools. There is another aspect even more important than these, but teachers have not yet advanced sufficiently in their appreciation of it to even rouse a discussion. Yet until this question is properly settled nature-study will never be more than an expedient, a time-killer, a kind of convenient busy-work in the schools. It will be in great danger of displacement by the next fad until this highest of all educational problems is thoroughly studied and a clear and definite decision is reached. I refer to the relations of the subject to the moral life of the pupil. No study can possibly be true to life and retain a permanent hold in the curriculum that does not drive straight for the great center of all interests in this world — human conduct. The faith that the continued and accurate reporting of their observations in nature will, in time, train them to be honest represents the highest view of the average teacher who even considers the subject at all. But in this respect nature-study has nothing to distinguish it from any other study. When the pupil is called upon to recount an incident in history, he is under as strong obligations to tell the truth as he is when he weighs a substance in the laboratory or reports any other observation. If this were the only claim that nature-study had for training in character, it could be supplanted by any other study in a course, and, so far as the moral result is concerned, it would never be missed. It is precisely for the reason that teachers uniformly believe that the training in nature has nothing of higher worth than this incidental value that its place in schools is rendered at once indefinite and uncertain.

When we look for the last effect of the highest studies upon the human being, we seek for it in this character; but when we inquire for the ultimate effect of nature-study, we usually are satisfied to go no farther than the clothes he wears, the food he eats, or the house that shelters him or the money it puts into his pocket. The infinite beneficence of nature-study in improving these creature comforts cannot be overestimated, but they are not the end; they never can be more than secondary. What the creature *is* who is clothed, fed, and sheltered must always be the paramount and primary question. The final query can never be, Is man *comfortable?* but, Is he good; is he trustworthy; is he reliable; is he honest; is he kind and unselfish? These questions call for the qualities that education must develop by *positive, not by incidental, means.*

There is but one question today worthy the attention of those interested in nature-study, and that is: Can this subject put these moral qualities directly into human character as effectively as the lessons of history do, not excluding Christ's Sermon on the Mount? There is not a community in this country today so stupid that it would permit a teacher to present the lessons of history to their children and leave out the story of Washington and Lincoln. The lives of these and other great men will be rehearsed until the last moment of time, because, independent of country and age, they give a profound and permanent uplift to the character of those who learn the lessons they teach. But there are few communities today where a teacher would be denied a footing because he could not teach nature-study to the children. From this fact, while neither the time nor the place will admit of its elaborate defense, I submit the proposition that in this its most vital aspects the teaching of nature-study is utterly false to life. If the stories of Washington and Lincoln make for character, and the stories of the frogs and snakes do not, then out, I say, with the frogs and snakes; I for one will have nothing more to do with them. If the lilies of the field point not "the way, the truth, and the life" as clearly and as unerringly as Christ himself did, then let us waste no more time upon the lilies. The supreme test for the value of nature-study is now at hand. For fifteen years teachers all over this country have bravely struggled to get the children in touch with nature. Books have been written by the score suggesting endless ways by which this may be done, and detailing devices to make the study interesting and pleasant; and substantial ground has been gained. During this time many burdens have been lifted from the pupils, and the teacher's work has been greatly improved. But the period of diversion is approaching an end. Not that the study of nature is to be less pleasant and interesting, but its purpose is to be more serious, more definite, more manifest.

The task now set for the friends of nature-study is great. It is not without deepseated result that for centuries mankind has been taught that the world and the flesh have been the joint partners of the devil. That nature-study can be a positive stimulus to the moral nature of man is a proposition resisted by the prejudices deep-rooted in the ignorance and bigotry of two thousand years. From the standpoint of moral development, man at first feared nature as something that was bent upon his eternal ruin. Then he despised nature as a stifling incubus upon his spiritual life. Today he regards nature as neutral and her teachings as irrelevant. This entirely false view of nature has given rise to an equally false and utterly misleading classification of studies in our curriculum; namely, the humanistic and scientific. We may study man *and* the *tree;* but we *must* study man. This partial view must always give undue precedence to the so-called humanistic, to the corresponding detriment of the so-called scientific. Whereas in the not distant future we shall find through the study of nature a proper evaluation of the so-called humanistic studies, it will be in the delicately balanced scales of science, it will be according to new standards of morality set up by a study of nature, that the true worth of all studies will be determined. When this is done, then all studies will be humanistic. As long as the ancient, but now almost obsolete, dualistic conception of man's nature prevailed; as long as man the *spiritual* being was set over against man the *carnal* being, so long has the house been divided against itself. But through the study of a nature—of life and its conditions—from that tiny sentient speck that, somehow, came into being in some sequestered spot, in some mysterious way, countless ages ago, down to the magnificent functions of a great brain that in its sympathy embraces the world, we are slowly getting rid of our primitive conception of a divided man. When at last our study shall no longer be *man* AND *nature,* but *man* IN *nature,* then will it be for the first time possible to have nature-study absolutely true to life.

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